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ABSTRACT

The project provided vocational training to four deaf/blind profoundly mentally handicapped, secondary students at the Monarch Center School Board of Alachua County in Gainesville, Florida. The training program was designed to develop the students' potential work and work-related skills and utilized a daily evaluation system to guide instructional decision making. Students were taught skills in the areas of horticulture, sorting/packaging, assembling, mobility, and dressing. Because the project stressed the importance of skill functionality and age-appropriate materials, project staff hoped to develop the ability of these individuals to perform tasks similar to those performed in sheltered workshops. Through intensive one-to-one training, it was hoped that students' performance would develop to levels acceptable for placement in local sheltered workshops. Attaining such skill levels would permit the students to continue their progress toward higher levels of normalization. Training results in terms of number of objectives achieved are detailed. (Author/DB)

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A Data-Based Curriculum and Program Monitoring System for Deaf/Blind, PMH Secondary Students

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Abstract

The purpose of this project was to provide vocational training to four deaf/blind, profoundly mentally handicapped, secondary students at the Monarch Center School Board of Alachua County in Gainesville, Florida. The training program was designed to develop the students' potential work and work-related skills. Students were taught skills in the areas of horticulture, sorting/packaging, assembling, mobility, and dressing. Because the project stressed the importance of skill functionality and age-appropriate materials (Snell, 1983), project staff hoped to develop the ability of these individuals to perform tasks similar to those performed in sheltered workshops and, where warranted, place the students in such environments. Through intensive one-to-one training, it was hoped that students' performance would develop to levels acceptable for placement in sheltered workshops at the Sunland Center (a State residential institution for mentally handicapped persons) or in the community. Attaining such skill levels would permit the students to continue their progress toward higher levels of normalization.

Curriculum

A functional set of curriculum objectives was designed and included skills in the areas of horticulture, sorting/packaging, assembling, trailing, and dressing. Accordingly, the primary objectives were to have students develop:

1. horticulture skills involving planting seeds in pots, placing pots in watering trays, and planting seedlings in garden plots;
2. a sorting/packaging task entailing a variety of discrimination skills involving the placement of materials of various sizes and shapes into appropriate containers;

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3. assembling/disassembling skills involving items such as jars, thermoses, and turning valves;
4. trailing skills requiring students to follow guide fences to and from the workshop; and
5. dressing skills involving students putting on and removing coveralls and work shoes.

Information gathered through a performance monitoring and evaluation system was used to determine the curricular needs of each individual and to provide a means for formative revisions of objectives.

Methods and Procedures

Four 18 to 20 year old persons who had been institutionalized for most of their lives participated in the program. All four students were functioning at or below a two-year developmental age. One student had some residual hearing, while another had some residual sight. One student displayed low rates of chronic, self-abusive behavior.

Daily Schedule

Students were provided with training and practice through the guidance of their classroom teacher and four teacher aides. Training was provided four days a week for three hours in a one-to-one, student-to-aide arrangement. During each session, the students were assisted to dress for work and practice trailing to one of the future work sites. On returning to the classroom, each student reported to one of four training stations where he or she was evaluated and practiced specific task responses or task response sequences. After completing work at two stations, the students were provided a work break. They walked to another area of the room, sat at a table, and had a snack consisting of various foods and beverages. After students had completed all four stations, they practiced trailing from the work site and changing back into their school clothes. This daily schedule was devised to simulate a workshop environment so that transitions to such an environment would be less difficult.

Students spent 25 minutes at each station and then rotated to another work station. One station was designed for horticulture training, one for sorting, one for packaging, and one for assembling. The horticulture skill training involved students potting seeds and placing containers into watering trays using a forward chaining technique (Snell, 1983). In addition, students planted seeds and seedlings in a garden outside the classroom. Training in sorting entailed various levels of tactile discriminations of shop materials (e.g., nuts, screws, washers) and domestic materials (e.g., sponges, utensils, brushes). The packaging

station involved students placing sets of shop materials into bags and putting domestic items into various containers. At the assembly station, students were taught to assemble and disassemble items such as jars and thermoses and to turn valves.

Promoting Responses

During instruction in all skill areas, students were guided through task responses by the aides. As proficiency increased, the degree of guidance decreased. A series of prompts, from most-intrusive to least-intrusive, were used for this purpose (Tawney, Knapp, O'Reilly, & Pratt, 1979). In the initial stages, the students were given physical assistance to perform each task response. This entailed the full manipulation of the students' arms and hands by the aides. A lesser prompt was used to provide physical assistance (i.e., gentle taps) as a student performed a task response. For those with functional vision, the next level of prompting was a visual prompt such as the aide pointing to the location of an object needed for the task response. At the same level, for students with functional hearing, a verbal prompt such as "stop" was used. Ultimately, attempts were made to reduce prompts, to the extent possible, to promote independent responding (Liberty, Haring, & Martin, 1981).

Direct Instruction

An instructional sequence, based on the Direct Instruction Model (Carnine & Silbert, 1979), was developed and used. Accordingly, the aides had students move through a three step process. In the first step, demonstration, the aides led students through the task response using physical assistance. This step was repeated several times to reinforce the saliency of the response model. Next, the aide followed a guided practice procedure; that is, the aide had students practice the task response or a component of a response task sequence with physical, verbal, or visual prompts. Reduction of the level of assistance allowed students to practice the response more independently, but prevented them from practicing errors (Sailor, Wilcox, & Brown, 1980). This approach also afforded the aide an opportunity to test the student and determine whether the student was capable of performing the task response with further reduction in the level of prompting. During the final step, independent practice, students were required to practice successive responses independently or with minimal, intermittent prompting. As the accuracy of independent responding increased, the focus of practice became fast and accurate responding.

Data-Based Decision Making

To monitor student progress, a daily evaluation system was devised. During the first five minutes at each station, students were evaluated

on acquisition and maintenance skills. The aides observed student performance on each trial. The aide recorded whether the task response was completed successfully and which, if any, prompts were used to guide the student through the task. The number of successful trials was tallied for each level of prompting (e.g., physical assistance, physical prompt, visual or verbal prompt, and independent response) and divided by a predetermined time interval to compute a rate measure of trials per minute. These data were then entered into a microcomputer and processed to create time series performance charts. The graphs were inspected to determine progress and to make instructional decisions for individual students.

Using performance data collected over the past 2.5 years, we established criteria for moving students onto a higher level or parallel objective. These criteria were based on the attainment of satisfactory rates of performance or extended periods of time without progress. Students were moved to new objectives when target skills reached a level of three to five trials per minute at the independent or prompted response level and were maintained for at least one week. When students maintained a performance plateau for three weeks without reaching criteria or, when performance levels deteriorated, students were moved to a lower or parallel objective.

In addition, progress graphs reflecting a student's cumulative mastery of a set of objectives were plotted. Progress graphs provided a more succinct and broader illustration of a student's long-term development (Deno & Merkins, 1977). Figures 1 through 4 contain the progress graphs of each student participating in the project over the last academic year. The cumulative graphs depict progress collapsed across domains.

Results

Considering the general level of functioning of students participating in the project, the results are indicative of substantial progress for three of the four participating students. One student demonstrated less progress than the others, but nonetheless made gains in her skills. Table 1 provides a sample of the specific curriculum objectives from each domain on which a particular student was working. Each student had an individually suitable set of objectives. The first two columns indicate dates of initiation and completion, respectively.

Elder successfully completed 17 objectives across three curriculum domains. In the area of sorting, he worked on sorting combs, variously-sized rods and spoons, and mixed bins of washers and bolts. In addition, he mastered the rudimentary packaging skill of placing a disassembled lid onto a box and the more advanced skill of taking a plastic box and a sponge from separate containers, placing the sponge in the box, closing

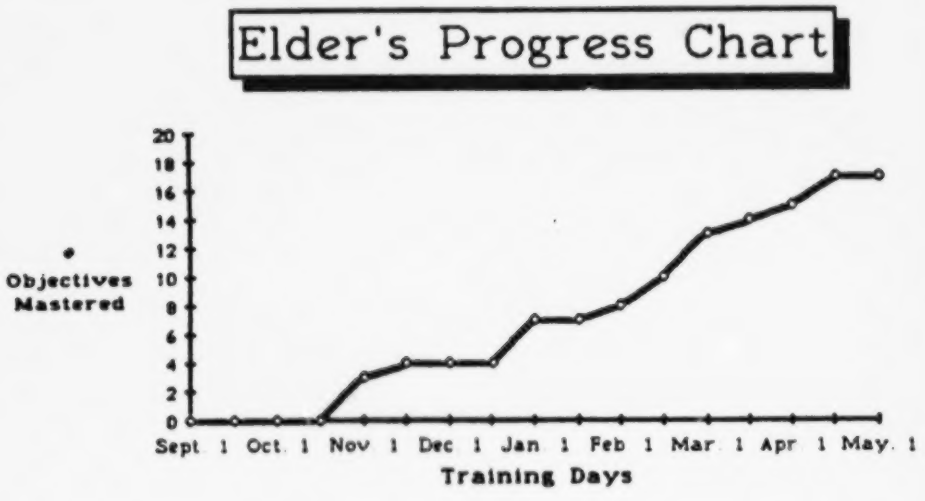

Figure 1: Elder's progress chart measuring the number of objectives mastered across instructional domains during the last academic year

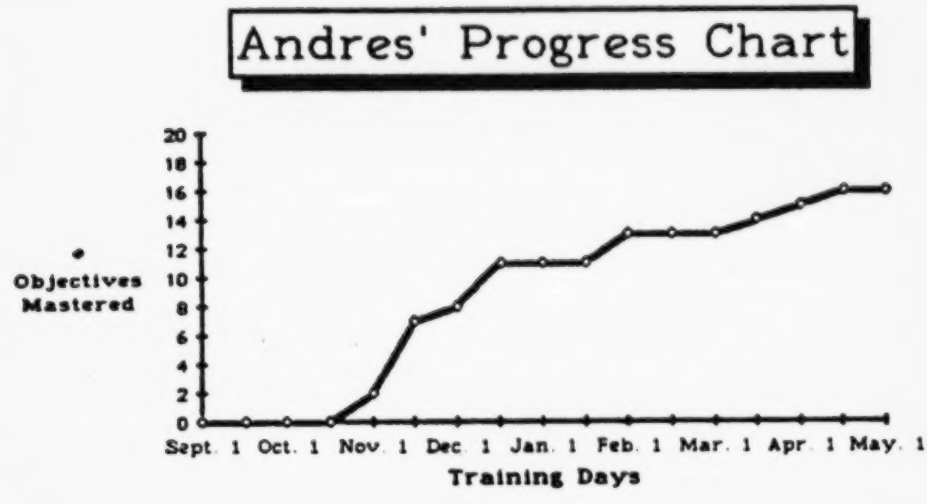

Figure 2: Andre's progress chart measuring the number of objectives mastered across instructional domains during the last academic year

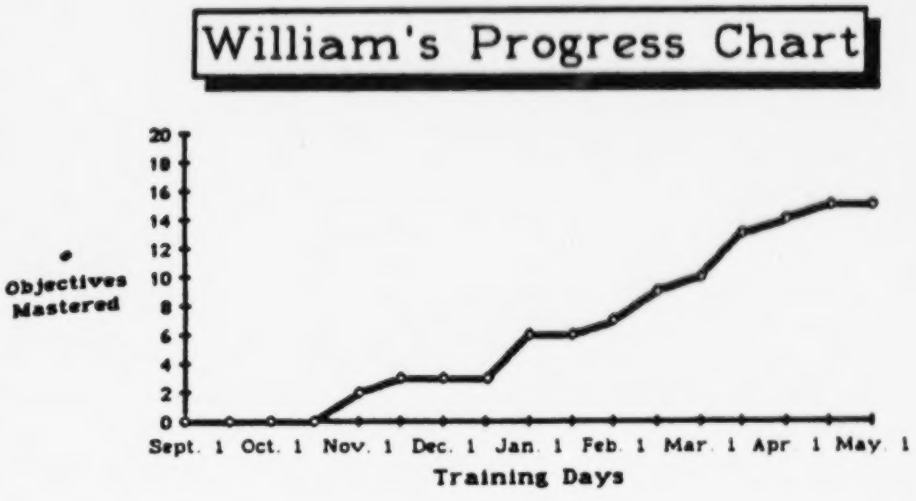

Figure 3: William's progress chart measuring the number of objectives mastered across instructional domains during the last academic year

Figure 4: Karen's progress chart measuring the number of objectives mastered across instructional domains during the last academic year

the lid, and placing the box in a third compartment. The most difficult aspect of the latter skill was to have Elder exert enough pressure on the lid to snap it shut. After several weeks of guided practice on this subskill, Elder finally made the necessary response. In the planting domain, he mastered the first two steps in a response chain. He was able to locate and grasp the plastic pot and scoop potting soil from a tub into the pot. Elder's most notable improvement in the quality of his responses was the increased agility and smoothness of his motions. This qualitative change, however, was not necessarily reflected in the data. Although the quality of his motions improved dramatically, his rate of responding did not improve concurrently.

Andre performed at a substantially higher level than that of the other three students. He mastered a comparable number of objectives during the past year, but the response tasks were much more sophisticated. In the sorting domain, Andre mastered sorting variously-sized rods and washers as well as sorting mixed bins of nuts, bolts, and washers in small drawers and replacing the drawers in a cabinet. In the packaging domain, Andre mastered counting out sets of four nuts or washers using a four-celled tray. The task required the student to place a single item in each cell and then to dump the tray into the large mouth of a funnel feeding into a bag. Andre also mastered placing a disassembled lid onto a box and taking a plastic box and a sponge from separate containers, placing the sponge in the box, closing the lid, and placing the box in a third compartment. In the planting domain, Andre mastered the full response sequence for potting seeds. He was working on a variety of other objectives involving planting flowers and vegetables and maintenance of the garden area.

The third student, William, mastered 15 objectives over the past academic year. Seven of the objectives were from the sorting domain and ranged from the rudimentary skill of sorting individual objects such as spoons and sponges to sorting variously-sized rods and sponges. In addition, he mastered four of the objectives from the packaging domain including bagging nuts from a tray and taking a plastic box when handed to him, placing a sponge inside, closing the lid, and placing it in a divider box. The basic turns domain appeared to have posed a greater challenge to William. To date, he mastered only one of five objectives by demonstrating the ability to turn a ring one revolution counterclockwise. He demonstrated more success in the planting domain by mastering three objectives. He located and grasped the container, scooped soil from the bin, and placed seeds into a container. As with Elder, William's progress was not fully represented in the numeric data. William's most notable changes were in the quality of his movements. He demonstrated

Table 1

CURRENT OBJECTIVES
Elder

1. SORTING TO BINS

9/16	10/28	1.3.1.3.	Sort rod from jig to bin.
9/16	11/6	1.3.1.4.	Sort rod from one bin to another bin.
11/6	12/16	1.3.2.1.	Sort large & small rods when handed to two bins.
1/16	1/29	1.3.2.2.	Sort large & small rods from table to two bins.
1/29	4/15	1.3.2.3.	Sort large & small rods from jig to two bins.
5/1	____	1.3.2.4.	Sort large & small rods from one bin to two bins.
5/1	____	1.3.3.1.	Sort wood, metal, & plastic rods when handed to three bins.
5/1	____	1.3.3.2.	Sort wood, metal, & plastic rods from table to three bins.
9/16	10/28	1.1.4.3.	Sort nuts & bolts from one bin to two bins.
10/28	12/16	1.1.5.1.	Sort bolts & washers when handed to bins.
1/16	2/15	1.1.5.2.	Sort bolts & washers from table to bins.
1/30	3/1	1.1.5.3.	Sort bolts & washers from one bin to two bins.
9/16	10/28	1.5.4.2.	Sort four different sized spoons from table to tray.
10/28	12/16	1.5.4.3.	Sort four different sized spoons from bin to tray.
1/16	3/1	1.4.1.1.	Sort comb when handed to bin.
3/13	4/1	1.4.1.2.	Sort comb from table to bin.
3/13	____	1.4.1.3.	Sort comb from one bin to another bin.
5/1	____	1.4.2.1.	Sort brush when handed to bin.
5/1	____	1.4.2.2.	Sort brush from table to bin.
5/1	____	1.4.2.3.	Sort brush from one bin to another bin.

2. SORTING TO DRAWERS

____	____	2.1.1.	Sort large, medium & small nuts when handed to drawers.

3. PACKAGING

10/6	____	3.1.1.1.	Bags nuts from tray.
10/6	3/15	3.2.1.4.	Take plastic box and sponge from left hand divider box, place sponge inside, close lid and place in divider box.
1/16	4/15	3.3.1.1.	Place lids on boxes when handed.
5/1	____	3.3.1.2.	Place lids on boxes from table.
5/1	____	3.3.1.3.	When materials are handed, place insert in box, place lid on box and push lid closed.
5/1	____	3.4.1.1.	Close lids of boxes.
5/1	____	3.4.1.2.	Place sponge in box and push lid closed.

4. BASIC TURNS

5/1	____	4.2.2.1.	Using insert board, screw bottle top on clockwise.
5/1	____	4.3.2.1.	Using insert board, screw bottle top on clockwise.
3/13	____	4.4.1.1.	Using insert board, unscrew cup counterclockwise.
3/13	____	4.4.1.2.	When handed, unscrew cup counterclockwise.
5/1	____	4.4.1.3.	When handed, screw leg clockwise
5/1	____	4.4.1.4.	Take leg from divider box and screw leg counterclockwise.

5. PLANTING

9/16	3/1	5.1.1.1.	Locates and grasps container.
9/16	2/15	5.1.1.2.	Scoops soil from bin.
5/1	____	5.1.1.3.	Places seed into container.
5/1	____	5.1.1.4.	Push seed into soil.
9/16	____	5.1.1.5.	Places container in watering tray.

a considerable improvement in the agility of twisting his wrist when scooping soil and when placing pots into the watering tray.

Karen's progress in all four of the domains was less consistent than that of her peers. She demonstrated the most success in the sorting domain in which four out of nine objectives were mastered. Sorting sponges and rods was mastered in less than three months for each objective. Sorting spoons from table to tray and sorting spoons from bin to tray were mastered in approximately six weeks. Karen was introduced to the packaging, basic turns, and planting domains although mastery of each of these objectives continued to be in the acquisition stage. Karen's progress was reduced by her self-injurious behaviors. Up until the last six to eight weeks of the academic year, Karen exhibited serious head-banging behavior almost on a daily basis. The school's behavior specialist devised various behavior management strategies for the aides to use when Karen participated in the project. The treatments were generally ineffective and at times Karen required extended periods of time-out or physical restraint which significantly reduced her instructional time.

Conclusion

The value of functional vocational skills for severely handicapped individuals has been broadly defended on personal, social, and economic grounds. Vocational training appears to promote individual growth, expand one's social circle, enhance social status, provide the means to participate in normal activities to the extent feasible, and allows one to contribute to the life of a community (Snell, 1983). Data from the

present project are evidence that deaf/blind, profoundly mentally handicapped students can develop a work history while in school that documents successful performance of a variety of skills. Training of these skills appears to have encouraged student independence, provided information about the external world, and facilitated student progress toward higher levels of normalization.

References

Carnine, D., & Silbert, J. (1979). *Direct instruction reading*. Columbus, OH: Merrill.

Deno, S., & Merkins, P. (1977). *Data-based program modification*. Reston, VA: Council for Exceptional Children.

Liberty, K.A., Haring, N.G., & Martin, M.M. (1981). Teaching new skills to the severly handicapped. *Journal of the Association for the Severely Handicapped, 6*(1), 5-13.

Sailor, W., Wilcox, B., & Brown, L. (Eds.). (1980). *Methods of instruction for severely handicapped students*. Baltimore, MD: Brookes.

Snell, M. (1983). *Systematic instruction of the moderately and severely handicapped*. (2nd ed.) Columbus, OH: Merrill.

Tawney, J., Knapp, D., O'Reilly, C., & Pratt, S. (1979). *The programmed environments curriculum*. Columbus, OH: Merrill.